7b, the feed screw 36, a connection section 37 and a guide rod 44. The connection section 37 is constituted of a groove member 37a and the nut 38 whose periphery is nearly rectangular. The connection section 37 has a screw hole 37b through which the feed screw 36 penetrates, and the nut 38 is engaged with the groove member 37a. The nut 38 has a hole (not shown) at a position corresponding to the screw hole 37b. On an edge face of the hole, a female screw portion is formed such that the feed screw 36 is fixedly engaged with the nut 38.

The connection section 37 has a guide hole 37c in which the guide rod 44 is slidably fitted. The guide rod 44 is disposed in parallel to an optical axis 6a of the taking lens 6, and fixed to the main body 30 such that the nut 38 may slide along the optical axis 6a without rotating around the feed screw 36. A transmit gear 47 is attached to a back end of the feed screw 36, and transmits the rotation caused by the motor 50 to the feed screw 36.

The reduction gear train 51 is constructed of the transmit gear 47, the gear 48, a worm gear 53, a worm wheel 54 and a spur gear portion 55. The worm gear 53 is secured to the rotary shaft 50a and meshed with the worm wheel 54. The worm wheel 54 is disposed below the worm gear 53, and a fixture shaft of the worm wheel 54 is disposed in parallel to the optical axis 6a. The spur gear portion 55 is integrally molded with the worm wheel 45, and the gear 48 is meshed with the spur gear portion 55 and the transmit gear 47. Therefore, the rotation caused by the motor 50 is transmitted to the transmit gear 47. According to diameters, the worm wheel 54 has a larger one than the worm gear 53, and the diameters become larger one by one in following, such as the spur gear portion 55, the gear 48 and the transmit gear 47. Thus, the rotational speed is reduced in the reduction

gear train 51. Note that some members are not illustrated in FIG. 5 for simplicity.

In FIG. 6, the detection mechanism 52 is constructed of a spur gear 56, an idle gear 57, an impeller 58, a spur gear 60 and a photo interrupter 59. The spur gear 56 is integrally molded with the worm gear 53, and disposed in an opposite side to the motor 50. The idle gear is meshed with the spur gear 56 and the spur gear 60. The impeller 58 has blades 58a and a rotary shaft 58b. The spur gear 60 is fixed to the rotary shaft 58b, and has a same diameter and a same number of teeth of the spur gear 56. Therefore, the impeller 58 is interlocked by the idle gear 57 to rotate at a same rotational speed of rotary shaft 50a of the motor 50, and does not collide with the idle gear 57. The photo interrupter 59 has a retraction where the blades 58a can pass.

When the blade 58a interrupts a light path of the photo interrupter 59 by the rotation of the impeller, the photo interrupter 59 outputs a signal "L". When the blade 58a does not interrupt the light path, the photo interrupter outputs a signal "H". Therefore, a pulse is generated every time from the photo interrupter 59 when one of the blades interrupts the light path. The number of pulses is counted to detect the amount of the rotation caused by the motor 50.

A diameter of the idle gear 57 is larger than that of both the spur gear 56 and the spur gear 60, such that these are disposed with a enough distance in order to keep a space for the impeller 58. As shown in FIG. 7, the worm wheel 54, the idle gear 57 and the impeller 58 are rotatably secured to holes 62a, 62b, 62c in a holder plate 62 that is formed of plastics respectively.

The effects of the above structure will be described.

When a picture is photographed, the slide case 4 is slid to turn the switch of the power source in ON position. The motor 50 causes to rotate the worm gear 53 and the spur gear 56. The rotation of the warm gear 53 is transmitted to the lens moving mechanism 42, which slides the second barrel section 7b forward or backward along the optical axis 6a. The rotation of the spur gear 56 is transmitted through the idle gear to the impeller 58, and when the impeller 58 rotates, the pulse is generated from the photo interrupter 59. When the predetermined number of the pulse is counted, the motor 50 stops such that the second barrel portion 7b may be in a predetermined position.

The rotation is decelerated in the reduction gear train 51. Therefore, while the lens moving mechanism 42 moves the second lens barrel 7b, the noise is little. Further, the impeller 58 rotates at the same rotational speed of the rotary shaft 50a of the motor 50, the second barrel section 7b is correctly slid in the predetermined position. As shown in FIGs. 6 and 7, the lengthwise direction of the feed screw 36 is perpendicular to the rotary shaft 50a of the motor 50, and the feed screw 36 and the motor 50 don't collide. Further, the all gears constructing the reduction gear train 51 and the detection mechanism are fixed to the holder plate 62. Thus, the motor actuation device can be contained in a small space.

When the zooming button 25 is operated, the motor 50 causes a normal or reverse rotation to shift the lens barrel 7b. When a finger is put apart from the zooming button 25, the motor stops and the photo optical system is set to a position corresponding to a magnification to be wished. After a picture is photographed, an user presses down the flash unit 8, and a switch of the camera is turned OFF. The motor 50 causes the reverse rotation to retract the lens barrel 7b in the retracted